IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

JIMMY DALE PALMER, et al.,	)	
	)	
	)	**Case No: 03-CV-0498-CVE-PJC**
Plaintiffs,	)	
	)	
v.	)	
	)	**Consolidated with:**
ASARCO INCORPORATED, et al.	)	
	)	**Case No: 03-CV-0565-CVE-PJC**
	)	**Case No: 03-CV-0566-CVE-PJC**
Defendants/Third-party Plaintiffs,	)	**Case No: 03-CV-0567-CVE-PJC**
	)	**Case No: 03-CV-0569-CVE-PJC**
	)	
v.	)	
	)	
UNITED STATES OF AMERICA, et al.	)	
	)	
	)	
Third-Party Defendants.	)	

OPINION AND ORDER

Now before the Court is the Motion of Defendants to Exclude Expert Testimony of Wayne R. Snodgrass, M.D., Ph.D. and Brief in Support (Dkt. # 528). Defendants argue that Wayne Snodgrass, M.D., Ph.D. ("Dr. Snodgrass"), lacks a reliable basis to offer any expert testimony and he should not be permitted to testify at trial. Plaintiffs respond that Dr. Snodgrass is a well-respected toxicologist who should be permitted to testify, even if his expert report does not fully disclose his methodology or the basis for his opinions.

I.

The plaintiffs in this case are seven minor children who claim that they were injured because they were exposed to low levels of lead over an extended period of time. Plaintiffs assert that lead exposure resulted when defendants, mining companies that operated in an area of northeastern Oklahoma now designated as the Tar Creek Superfund Site, left piles of mining waste on the surface

for decades, and the mining waste was blown by wind to plaintiffs' residences in the nearby towns of Picher and Cardin, Oklahoma. Plaintiffs have been tested for lead in their blood, and test results have shown that each plaintiff has some amount of lead in his or her blood. The blood lead levels at issue in this case are relatively low, but plaintiffs argue that there is no known safe blood lead level. Plaintiffs have been examined by neuropsychologists in connection with this litigation, and plaintiffs allege that their injuries include behavioral disorders, learning disabilities and IQ loss.

In support of their tort claims, plaintiffs retained an expert on toxicology, Dr. Snodgrass, to testify that plaintiffs' alleged injuries were actually caused by exposure to lead. Dr. Snodgrass' initial report, dated April 22, 2004, is a total of seven pages long, excluding his résumé, and it contains four expert opinions.[1] He concluded that:

> 1. Lead (Pb) exposure of the children [B.H.], [M.H.], [S.N.], [J.P.], [J.B.S.], [Z.S.], and [T.S.] was of such a magnitude that it more likely than not resulted in adverse health effects in these children.
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> 2. Lead (Pb) exposure of these children resulted mostly from hand-to-mouth activity ingestion of soil/house dust contaminated with lead (Pb) and from inhalation of dust contaminated with lead (Pb).
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> 3. Lead (Pb) exposure of these children resulted in elevated whole blood lead (Pb) levels known to produce adverse health effects in children.
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> 4. The adverse health effects of lead (Pb) exposure in these children, as documented in published peer-reviewed studies of children include:
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> a. A decline of greater than 7 IQ points as lifetime average whole blood lead (Pb) concentration increases from 1 to 10 micrograms/deciliter (ug/dl).

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[1] Dr. Snodgrass also submitted an affidavit, dated on June 13, 2007, "clarifying" his expert opinions and his methodology. However, plaintiffs agreed to withdraw the affidavit, and the Court will not consider the affidavit when ruling on defendants' motion to exclude Dr. Snodgrass' testimony.

> b. An average decrease of at least 4.5 IQ points for each increase in whole blood lead (Pb) level of 10 micrograms/deciliter.
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> c. An increase in behavioral disorders and decreased school academic performance.
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> d. A decrease in fine motor (muscle use) control in children with elevated whole blood lead (Pb) levels.
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> e. A prolongation of nerve conduction time in cranial nerve VIII (auditory, i.e., hearing).
>
> f. Anemia including inhibition of a biochemical blood test, red blood cell ALDA (aminolevulinic acid dehydratase) activity.

Dkt. # 530, Ex. A, at 1-2. As a factual basis for his report, Dr. Snodgrass relies on blood test results for 3 plaintiffs, each plaintiff's IQ, and Kirk Brown, Ph.D.'s opinions on lead deposition and soil lead levels near plaintiffs' residences. Dr. Snodgrass assumes that each plaintiff ingested a daily "dirt dose" of 50-200 mg per day and, based on this assumption and an estimated soil lead level,[2] he claims that "one can calculate an estimated (Pb) level." Id. at 6. Dr. Snodgrass did not personally examine any of the plaintiffs before reaching his opinions. Based on his report, it does not appear that he actually reviewed plaintiffs' medical or educational records when forming his opinions, but he states that he did consider neuropsychological testing performed by Bonny Forrest, Ph.D., or Jeanette Wasserstein, Ph.D., for each plaintiff.[3]

Defendants' primary argument is that Dr. Snodgrass did not use a reliable methodology when reaching his expert opinions, and he has no basis to opine that plaintiffs were injured. Plaintiffs

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[2] Dr. Snodgrass assumed that each plaintiff ingested up to 200 mg of dirt per day and that the dirt contained 1500 ppm of lead. However, it appears that Dr. Snodgrass did not rely on actual soil lead data to determine the amount of lead in the soil at plaintiffs' residences.

[3] Dr. Forrest examined five of the plaintiffs, J.B.S., Z.S., B.H., T.S., and M.H., and Dr. Wasserstein examined the remaining two plaintiffs, S.N. and J.P.

respond that Dr. Snodgrass did not have to perform his own testing, because he could rely on the expert testimony of Dr. Forrest and Dr. Wasserstein to provide the necessary data for his opinions. Plaintiffs claim that Dr. Snodgrass followed the proper methodology for a toxicologist to determine the existence of an injury, and as long as Dr. Snodgrass followed this methodology the Court should find that defendants' Daubert challenge goes to the weight rather than the admissibility of Dr. Snodgrass' testimony.[4] Plaintiffs assert that Dr. Snodgrass applied the following methodology when reaching his opinion that each plaintiff suffered an injury from exposure to lead:

> 1. whether there was exposure to the [toxin];
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> 2. whether the toxins were capable of causing the observed effect (general causation);
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> 3. whether there was a valid temporal relation between the exposure and observed effects;
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> 4. whether he could eliminate reasonable confounding factors that would explain the observed effects; and
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> 5. whether there was reliable dose information on which conclusions could be drawn.

Dkt. # 561, at 8-9. It is not clear from Dr. Snodgrass' report that he actually followed this methodology. For example, his report does not discuss confounding factors other than lead that could explain plaintiffs' alleged injuries. At the Daubert hearing on July 30, 2007, Dr. Snodgrass testified that he considered other factors, such as parental intelligence, genetics, and socioeconomic status, but he did not feel that it was necessary to include this analysis in his written report. He also testified that an unwritten assumption in his report was that each plaintiff had an actual blood lead

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[4] Plaintiffs outline a five step methodology on pages 8 and 9 of their response, but they do not provide a citation to show from where this methodology is derived. It is nowhere in Dr. Snodgrass' report.

level higher than test results indicated. He determined that each plaintiff's blood lead level was at least 15 ug/dL even if no blood lead tests supported this finding.

From a plain reading of Dr. Snodgrass' report, certain important factual omissions are facially apparent and the Court will take these omissions into account when ruling on defendants' motion to exclude Dr. Snodgrass. First, Dr. Snodgrass' report does not contain any blood lead data for B.H., S.N. or T.S. and it is unclear how Dr. Snodgrass determined that these plaintiffs were exposed to lead. In addition, Dr. Snodgrass relies on an oral report from a parent noted in Dr. Forrest's expert report that M.H. had a blood lead level of 14 ug/dL. However, defendants have presented evidence that M.H. had blood lead testing and his highest reported blood lead level was 4 ug/dL. This calls into question the factual basis for Dr. Snodgrass' opinions about injury-in-fact and causation. Defendants have also pointed out that Dr. Snodgrass does not specifically refer to T.S. when discussing plaintiffs' alleged injuries, and they would be required to speculate as to any testimony Dr. Snodgrass might offer about T.S. Plaintiffs suggest that these omissions in Dr. Snodgrass' report were cured by Dr. Snodgrass' extensive deposition testimony, and defendants will not be prejudiced by any omissions in the expert report.

II.

In Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), the Supreme Court held that district courts must initially assess the admissibility of expert testimony under Fed. R. Evid. 702. In Bitler v. A.O. Smith Corp., 400 F.3d 1227 (10th Cir. 2005), the Tenth Circuit discussed the role of district courts when considering a Daubert challenge. First, the court should make a preliminary finding that the expert is qualified to testify. Next, the proponent of expert testimony must establish that the expert used reliable methods to reach his conclusion and that the expert's

opinion is based on a reliable factual basis. The Tenth Circuit cited four factors that district courts should apply to make a reliability determination:

> (1) whether a theory has been or can be tested or falsified; (2) whether the theory or technique has been subject to peer review and publication; (3) whether there are known or potential rates of error with regard to specific techniques; and (4) whether the theory or approach has "general acceptance."

Id. at 1233 (citing Daubert, 509 U.S. at 593-94). The Tenth Circuit was clear that "a trial court's focus generally should not be upon the precise conclusions reached by the expert, but on the methodology employed in reaching those conclusions." Id. In other cases, the Tenth Circuit has emphasized that any analytical gap in an expert's methodology can be a sufficient basis to exclude expert testimony under Daubert. Trucks Ins. Exchange v. MagneTek, Inc., 360 F.3d 1206, 1212-13 (10th Cir. 2004); Goebel v. Denver & Rio Grande Western R. Co., 346 F.3d 987, 992 (10th Cir. 2003). Under Daubert, "'any step that renders the analysis unreliable . . . renders the expert's testimony inadmissible. This is true whether the step completely changes a reliable methodology or merely misapplies that methodology.'" Mitchell v. Gencorp Inc., 165 F.3d 778, 783 (10th Cir. 1999) (citing In re Paoli R.R. Yard PCB Litigation, 35 F.3d 717, 745 (3d Cir. 1994)).

III.

Defendants raise five arguments in support of their motion to exclude this expert's testimony: (1) Dr. Snodgrass lacks a reliable basis to offer an opinion that low level lead exposure caused an injury to plaintiffs; (2) he impermissibly relied on other experts to determine that plaintiffs suffered certain injuries, and he did not actually review plaintiffs' medical or educational records to support his opinion; (3) Dr. Snodgrass reaches conclusions about general causation without sufficient scientific support; (4) there is no evidence that plaintiffs were exposed to amounts of lead that could cause the impairments cited by Dr. Snodgrass; and (5) Dr. Snodgrass failed to rule out other causes

of plaintiffs' injuries before concluding that lead caused their alleged injuries. Dkt. # 528, at 1. Plaintiffs argue that Dr. Snodgrass is qualified to give an expert opinion on toxicology and, based on his own assessment of the proper methodology for a toxicologist, he followed a reliable methodology and should be permitted to testify.

A.

The first matter the Court must consider is the scope of its review, specifically, if plaintiffs should be permitted to rely on information other than Dr. Snodgrass' expert report to establish the reliability of his testimony. Defendants argue that the Court should limit its review to only facts, analysis, and opinions disclosed in Dr. Snodgrass' Rule 26 report. Plaintiffs claim that defendants took a detailed deposition of Dr. Snodgrass and defendants were on notice of the basis for the four opinions stated in his expert report. According to plaintiffs, defendants knew the basis and methodology supporting Dr. Snodgrass' testimony, and the Court should not limit its review solely to the expert report. For example, plaintiffs suggest that Dr. Snodgrass performed a differential diagnosis even though this is not apparent in his report, and they argue he did not need to fully explain every part of his reasoning in his report. See Vollmert v. Wisconsin Dept. of Transp., 197 F.3d 293, 300-01 (7th Cir. 1999) ("In demanding a 'roadmap,' the Department would require an expert to not only provide the justification for the opinion but also to give a primer on why the facts allow the expert to reach that conclusion.").

Plaintiffs argue that an expert's report does not actually have to inform the reader how an expert reaches his opinion, and they suggest that defendants are asking for a level of specificity in expert reports that Fed. R. Civ. P. 26 does not require. Rule 26(a)(2) requires an expert who is retained or specially employed to submit a report containing "a complete statement of all opinions

to be expressed and the basis and reasons therefor; the data or other information considered by the witness in forming the opinions; [and] any exhibits to be used as a summary of or support for the opinions." Fed. R. Civ. P. 26(a)(2). While a party's initial expert disclosures do not have to anticipate every possible challenge to an expert's testimony and supplementation of expert testimony should often be permitted, a court may certainly limit an expert to the opinions and data expressed in his report after a reasonable amount of time for supplementation has passed. Miller v. Pfizer, Inc., 356 F.3d 1326, 1334-35 (10th Cir. 2004). This case is almost four years old and, as the Court has discussed in another opinion and order (Dkt. # 654), plaintiffs' expert deadlines have repeatedly been extended. Plaintiffs have had ample opportunities to supplement Dr. Snodgrass' expert disclosures, but they have made no attempt to do so.

At the Daubert hearing, plaintiffs argued that defendants learned the basis for Dr. Snodgrass' opinions during his deposition, and his deposition testimony should be considered as part of his expert disclosures. Under plaintiffs' theory, if a party deposes an expert and uncovers the methodology or rationale for the expert's opinions not disclosed in the report, the party has no cause to complain about deficiencies in the report. This is contrary to the spirit of the Federal Rules of Civil Procedure, as the commentary to Fed. R. Civ. P. 26(a)(2) suggests that this rule was intended to reduce the importance of expert depositions:

> Revised subdivision (b)(4)(A) authorizes the deposition of expert witnesses. Since deposition of experts required to prepare a written report may be taken only after the report has been served, the length of the deposition of such experts should be reduced, and in many cases the report may eliminate the need for a deposition.

Advisory Committee's Notes to Fed. R. Civ. P. 26(a)(2) (1993 amendments); see also Saudi v. Northrop Grumman Corp., 427 F.3d 271, 278-79 (4th Cir. 2005) (complete expert disclosures are the "centerpiece of discovery" and failure to fully comply with Fed. R. Civ. P. 26 prevents an

opposing party from properly preparing for trial); Ortiz-Lopez v. Sociedad Espanola de Auxilo Mutuo Y Beneficiencia de Puerto Rico, 248 F.3d 29, 35 (1st Cir. 2001) (mandatory expert disclosure requirements are intended to facilitate discovery and minimize the expense of deposing experts). In fact, plaintiffs' suggestion would have the effect of penalizing defendants for taking a thorough deposition of Dr. Snodgrass, because Dr. Snodgrass would be permitted to testify about matters not disclosed in his expert report. Rule 26 is clear that an expert's complete opinions and the basis for those opinions must be disclosed in his report, and the Court will consider only opinions and data identified in Dr. Snodgrass' report when ruling on the reliability of his testimony. The Court will refer to Dr. Snodgrass' deposition testimony to the extent it clarifies the opinions and data disclosed in his expert report.

B.

Defendants claim that Dr. Snodgrass does not have a reliable basis to determine that any plaintiff has suffered an injury or, in the alternative, that he lacks a reliable basis to discuss specific injuries mentioned in his report. To determine the extent of plaintiffs' alleged injuries, Dr. Snodgrass relied on the findings of plaintiffs' neuropsychology experts, Dr. Forrest and Dr. Wasserstein. By itself, the fact that Dr. Snodgrass relied on the findings of other experts as a factual basis for his opinions is not a ground for exclusion as long as other experts in the field would rely on that type of evidence. Bitler, 400 F.3d at 1236; Kinser v. Gehl, 184 F.3d 1259, 1272 (10th Cir. 1999), *overruled on other grounds*, Weisgram v. Marley Co., 528 U.S. 440 (2000). However, defendants argue that Dr. Snodgrass must use a reliable methodology to determine that the neuropsychological test results show that plaintiffs have suffered an injury-in-fact.

Defendants attack Dr. Snodgrass' opinion that each plaintiff suffered an injury in the form of lost IQ points. Defendants claim that he is relying solely on the testimony of the neuropsychologists to find that plaintiffs IQ test results show that lead exposure caused each plaintiff to lose IQ points.[5] According to defendants, an average IQ score for a child is 100, and they admit plaintiffs' IQ scores are below average. However, they argue that evidence of below average IQ can not be used to show that plaintiffs suffer from a reduced IQ, because there is no way to know what plaintiffs IQ would be without exposure to lead. During his deposition, Dr. Snodgrass admitted that epidemiological studies linking IQ loss and lead exposure have minimal use when diagnosing an individual child with IQ loss, and defendants ask the Court to exclude Dr. Snodgrass' opinion that plaintiffs suffer from IQ deficits. Dkt. # 530, Ex. 2, at 99. While published studies have associated IQ loss with reduced IQ on a community level, these studies do not provide a reliable basis to diagnose individual children with IQ loss absent some type of preexposure testing. Defendants are correct that Dr. Snodgrass' opinion (Opinions 4a and 4b) that plaintiffs have lost IQ points from lead exposure is pure speculation, and Dr. Snodgrass will not be permitted to testify at trial that plaintiffs have lost IQ points.

Defendants argue that Dr. Snodgrass has no basis to conclude that plaintiffs suffered loss of nerve conductivity or that plaintiffs had anemia, because plaintiffs were never tested for these conditions. Dr. Snodgrass stated that these conditions are frequently found in lead exposure cases, but he admits he has no testing to support a conclusion that plaintiffs actually suffer from these

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[5] Dr. Forrest and Dr. Wasserstein carefully avoid making any finding that plaintiffs have lost IQ points as a result of exposure to lead. Although they noted an association between lead exposure and IQ loss, their expert reports do not support a finding that plaintiffs have suffered an injury in the form of lost IQ points.

injuries. Dr. Snodgrass acknowledged that there is a specific test for loss of nerve conductivity and none of the plaintiffs has had this test. However, he attempts to save this part of his testimony by stating that testing is not necessary in lead exposure cases, because published studies have linked this injury to lead exposure above 20 ug/dL. Dkt. # 530, Ex. 2, at 57-60. Dr. Snodgrass' basis for finding that plaintiffs suffer from loss of nerve conductivity is speculative, and he has no factual basis to determine that plaintiffs have actually suffered this injury.[6] Likewise, plaintiffs have not been tested for anemia, but Dr. Snodgrass opines that anemia is a common injury in lead exposure cases. Id. at 60. In their response to defendants' motion, plaintiffs make no attempt to show that Dr. Snodgrass has a reliable basis to testify that plaintiffs lost nerve conductivity or have anemia, and it appears that Dr. Snodgrass is just hypothesizing that plaintiffs have these injuries. The only reliable way to determine that plaintiffs have these injuries is testing for these specific conditions and, in the absence to testing, any diagnosis is pure speculation. Dr. Snodgrass' opinions (Opinions 4e and 4f) that plaintiffs suffered loss of nerve conductivity or anemia are unreliable, and this testimony should be excluded.

C.

Defendants challenge Dr. Snodgrass' opinion on general causation in whole and in part. Dr. Snodgrass cites many of the same studies cited by Dr. Forrest and Dr. Wasserstein to support his testimony that lead exposure can generally cause the alleged injuries noted in his report, and defendants acknowledge that studies can provide a reliable basis for expert testimony on general causation. Goebel v. Denver & Rio Grande Western R. Co., 346 F.3d 987, 995 (10th Cir. 2003);

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[6] In addition, none of the plaintiffs in the case has ever been found to have a blood lead level in excess of 20 ug/dL, and the studies cited by Dr. Snodgrass in his report and deposition are inapplicable.

Dodge v. Cotter Corp., 328 F. 3d 1212, 1222-23 (10th Cir. 2003). However, defendants argue that Dr. Snodgrass failed to develop his opinion on general causation in a methodologically sound manner, and his failure to show that lead is capable of causing plaintiffs' alleged injuries requires the Court to exclude his testimony.

An opinion as to general causation is not normally a basis to exclude an expert's testimony unless the expert intends to testify about a previously unrecognized theory of causation or injury. Ingram v. Solkatronic Chemical, Inc., 2005 WL 3544244, at *3 (N.D. Okla. Dec. 28, 2005). Defendants' theory is that certain types of injuries, such as attention deficit disorders and related behavioral disorders, have not been linked to lead exposure in any existing studies, and Dr. Snodgrass intends to offer novel scientific testimony on the issue of general causation. Courts have excluded experts on this basis in other cases. Ruggiero v. Warner-Lambert Co., 424 F.3d 249, 255 (2d Cir. 2005) (district court properly excluded expert testimony that a drug caused plaintiff any injury, because no studies or published articles supported this theory of general causation); Farris v. Intel Corp., --- F. Supp. 2d ---, 2007 WL 1932131, at *6-7 (D.N.M. March 14, 2007) (excluding expert testimony that inhalation of ammonium hydroxide causes rhinitis, sinusitis, and vertigo when this opinion was supported by statement of expert only); Wynacht v. Bechman Instruments, Inc., 113 F. Supp. 2d 1205, 1209 (E.D. Tenn. 2000) (expert excluded when no published studies or generally accepted scientific principles supported expert's theory of general causation). If defendants can show that Dr. Snodgrass lacked a reliable basis to link specific injuries to low level lead exposure, this is a legitimate basis to exclude his testimony in whole or in part.

Defendants' primary argument concerning general causation is that Dr. Snodgrass lacks a reliable basis to opine that lead exposure can cause the behavioral disorders identified is his report.

Dr. Snodgrass relied on the reports of Dr. Forrest and Dr. Wasserstein to establish that B.H., S.N., J.P., B.S. and Z.S. have some form of attention deficit disorder. Specifically, defendants argue that no published studies have identified low level lead exposure as a cause of attention deficit hyperactivity disorder ("ADHD"). The neuropsychologists concluded that some of the plaintiffs had ADHD, and Dr. Snodgrass relied on these findings when he opined that lead exposure caused behavioral disorders. However, Dr. Snodgrass did not identify in his report any scientific literature linking ADHD to low level lead exposure.[7] Plaintiffs offer no support for Dr. Snodgrass' proposed testimony that lead has been found to cause ADHD. The Center for Disease Control ("CDC") has not found enough empirical evidence to conclusively link low level lead exposure to ADHD. Defendants cite a 2002 study published by the CDC finding that "[a]t present, there is no compelling evidence that an [elevated blood lead level] increases a child's risk for attention deficit hyperactivity disorder." David Bellinger and Leonard Rappaport, *Managing Elevated Blood Lead Levels Among Young Children*, Ch. 5, at 81 (2002). Although the CDC notes that there is a debate within the relevant scientific community on this issue, any link between ADHD and lead is a novel scientific theory that has not been generally accepted.

Based on Dr. Snodgrass' report and the evidence presented at the Daubert hearing, the Court finds that Dr. Snodgrass lacks a reliable basis to opine that lead and ADHD are causally related. Norris v. Baxter Healthcare Corp., 397 F.3d 878, 884-85 (10th Cir. 2005) (expert testimony on general causation should be excluded in the absence of epidemiological support for expert's theory

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[7] Dr. Snodgrass mentioned an article by "Sinclair" in his deposition, but he did not cite this article in his report and he has not subsequently provided this article to defendants. Dkt. # 530, Ex. 2, at 109. He could not provide a citation for the Sinclair article in his deposition, and plaintiffs did not produce this article at the Daubert hearing.

of causation); Mitchell, 165 F.3d at 782-83 (excluding expert testimony when plaintiffs failed to show that the substance was capable of causing the alleged injury). Given that the CDC has refrained from taking any position that lead exposure causes ADHD and no studies cited in Dr. Snodgrass' report support this opinion, it is clear that this is novel scientific testimony. Even if Dr. Snodgrass believes this link exists, without scientific support, this opinion is classic ipse dixit, and any testimony that lead exposure caused ADHD should be excluded. Therefore, Dr. Snodgrass will not be allowed to testify that plaintiffs suffer from ADHD as a result of exposure to lead.

D.

Defendants argue that Dr. Snodgrass lacks a reliable basis to testify that lead was the specific cause of plaintiffs' alleged injuries, because there is no evidence that plaintiffs were exposed to enough lead to cause their injuries. Dr. Snodgrass opines that each plaintiff was exposed to lead "of such a magnitude that it more likely than not resulted in adverse health effects in these children." Dkt. # 530, Ex. 1, at 1. At the Daubert hearing, defendants pointed out that Dr. Snodgrass' report does not contain blood lead level data for M.H., S.N., T.S. or B.H., and he has no basis to conclude that these plaintiffs were exposed to any amount of lead. At a minimum, he will not be permitted to offer any expert testimony as to M.H., S.N., T.S. or B.H. Dr. Snodgrass has failed to establish a necessary prerequisite for his causation opinion for these plaintiffs, because he not shown that these plaintiffs were actually exposed to lead. Even if he could show that these plaintiffs suffered an injury, there is no possibility that he can link this injury to lead exposure. As to the other three plaintiffs, defendants attack Dr. Snodgrass' specific causation opinion on two grounds: (1) defendants argue that plaintiffs' blood lead levels are too low to cause the injuries cited in Dr. Snodgrass' report; and (2) defendants suggest that Dr. Snodgrass impliedly found that plaintiffs'

blood lead levels were higher than reported test results based solely on the fact that plaintiffs lived in Picher and Cardin.

Defendants argue that Dr. Snodgrass has no basis to conclude that lead caused these plaintiffs to lose IQ points or to develop behavioral problems, because the levels of lead are so low. After reading Dr. Snodgrass' report, it does not appear that he considered any other factors that could explain their neurological injuries other than exposure to lead. When a defendant challenges the admissibility of medical testimony in a toxic exposure case, the Court can consider the expert's failure to consider "confounding factors" in his causation analysis when determining whether the expert's testimony is reliable. Marmo v. Tyson Fresh Meats, Inc., 457 F.3d 748, 758 (8th Cir. 2006); Rider v. Sandoz Pharmaceuticals Corp., 295 F.3d 1194, 1199-2000 (11th Cir. 2002); Hollander v. Sandoz, 289 F.3d 1193, 1209 (10th Cir. 2002); In re Joint Eastern & Southern Dist. Asbestos Litigation, 52 F.3d 1124, 1129 (2d Cir. 1995). Plaintiffs suggest that Dr. Snodgrass performed a differential diagnosis even though this is not apparent in his report, and they argue he did not need to fully explain every part of his reasoning in his report. See Vollmert, 197 F.3d 293, 300-01 (7th Cir. 1999). This is not a case, such as Vollmert, where the defendants are unreasonably objecting to an expert's report because it did not contain the level of specificity that the defendants would have preferred. Defendants have legitimately noted that Dr. Snodgrass' expert report does not contain any analysis and the facts supporting his opinions are woefully inadequate. After reviewing the expert report, the Court finds that there is no basis to conclude that Dr. Snodgrass performed a differential diagnosis or ruled out other confounding factors when he determined that lead was the specific cause of plaintiffs' injuries.

Even if the Court considered blood lead data referenced in the neuopsychologists reports, the highest measured blood lead levels of at least four of the plaintiffs, M.H., B.H., S.N., and Z.S., are below the CDC's level of concern, and none of the plaintiffs has ever had a blood lead result high enough to require medical intervention under the CDC's standards. In this type of case, a differential diagnosis is probably more important than in most cases, because plaintiffs are trying to rule in lead exposure as the primary cause of injury when the toxicity levels are relatively low. Mancuso v. Consolidated Edison Co. of New York, Inc., 56 F. Supp. 2d 391 (S.D.N.Y. 1999) (probability that the amount of toxin involved caused an illness is a factor that should be weighed against other confounding factors that could cause the same illness); Cavallo v. Star Enter., 892 F. Supp. 756, 771 (E.D. Va. 1995) (the plaintiff's dosage and duration of exposure to a toxic substance is an important consideration when ruling in the toxic substance as a cause of injury). Given the low blood lead levels for the plaintiffs in this case, it is especially important for Dr. Snodgrass to effectively and reliably rule in lead as a cause of plaintiffs' injuries before he will be permitted to testify at trial.

Dr. Snodgrass testified in his deposition that he did consider factors such as genetics, parental intelligence and psychosocial settings. However, the Court has reviewed his deposition testimony and find that it is not clear how he ruled in or ruled out different factors because of the general nature of his deposition testimony.[8] Dkt. # 530, Ex. 2, at 116-17, 142-43, 157, 168-69. Dr.

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[8] Dr. Snodgrass testified at the Daubert hearing that lead was obviously the cause of plaintiffs' alleged injuries, and he did not feel that it was necessary to explain his differential diagnosis in his written report. When an expert offers opinion evidence based on his experience, but without presenting testing, data, or other evidence of the scientific principles used to reach his opinion, the court should exclude expert testimony supported only by the "ipse dixit of the expert." Pro Service Automotive L.L.C. v. Lenan Corp., 469 F.3d 1210, 1215 (8th Cir. 2006) (excluding causation opinion when expert did not conduct scientific testing or cite

Snodgrass acknowledged that, absent pre-exposure testing, epidemiological studies linking lead exposure to loss of IQ points do not provide a sufficient basis to diagnose an individual with an injury caused by lead. Id. at 99. However, he relies on studies as the sole basis for his opinion that plaintiffs actually lost IQ points, because he did not have any way to compare plaintiffs' test scores before and after exposure. His report is completely devoid of any evidence that he performed a differential diagnosis to rule in lead as the primary cause of plaintiffs' injuries, and his deposition provides few specifics about his analytical process. See Morin v. United States, 2007 WL 2112794 *1 (9th Cir. July 24, 2007) (district court did not have to consider expert's differential diagnosis when the analysis was not stated in the expert's report). Without a solid differential diagnosis, Dr. Snodgrass lacks a reliable basis to show that low levels of lead are responsible for the injuries noted in his report.[9]

Defendants also challenge Dr. Snodgrass' assumption that many of the plaintiffs had higher blood lead levels than their test results would indicate. He relies on Dr. Brown's testimony to

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specific data supporting his opinion); Norris, 397 F.3d at 886 ("Although '[t]rained experts commonly extrapolate from existing data,' neither Daubert nor the Federal Rules of Evidence 'require a district court to admit opinion evidence which is connected to existing data only by the ipse dixit of the expert.'").

[9] Defendants provide an analysis of other factors that should have been considered for each plaintiff, such as parental intelligence, smoking, genetic history of learning disorders and behavioral problems, and plaintiffs' mothers' health during pregnancy. If Dr. Snodgrass had expressly considered these factors and ruled them out, defendants' argument would go the weight instead of the admissibility of his testimony. Cooper v. Smith & Nephew, Inc., 259 F.3d 194, 201 (4th Cir. 2001); Westberry v. Gislaved Gummi AB, 178 F.3d 257 (4th Cir. 1999); Perkins v. Origin Medsystems, Inc., 299 F. Supp. 2d 45, 58-59 (D. Conn. 2004). (cont'd)
However, Dr. Snodgrass' failure to perform a differential diagnosis for each plaintiff goes to his methodology, and this is a proper basis to exclude his testimony. Clausen v. M/V NEW CARISSA, 339 F.3d 1049, 1058 (9th Cir. 2003); In re Paoli R.R. Yard PCB Litigation, 35 F.3d 717 (3d Cir. 1994).

establish that lead existed in the soil in each plaintiff's residence. Based on Dr. Brown's proposed expert testimony, Dr. Snodgrass estimated the blood lead level of a hypothetical child in similar circumstances, and he determined that each plaintiff should have a blood lead level of at least 15 ug/dL. There are many problems with Dr. Snodgrass' assumption. He acknowledged that he did not know how to run the EPA's Integrated Exposure Uptake Biokinetic Model ("IEUBK"), and he did not have anyone prepare IEUBK results based on the specific facts of this case. Instead, he changed certain factors in preexisting calculations to reach his results. Dkt. # 530, Ex. 2, at 83-84. The following discussion between defense counsel and Dr. Snodgrass highlights that there was no need for Dr. Snodgrass to estimate blood lead levels:

> Q. So that with respect to [Z.S.], your finding of a 10 point IQ point lost is dependent on an assumption that at some time in her life she had a -- an actual blood lead level higher than 6?
>
> A. Yes, sir.
>
> Q. And she was born in 1996, was she not, February 27, 1996?
>
> A. I think that's correct.
>
> Q. Measured in October of that year at 6; again February of '98 as 6; in November of '99, that is at age 3, at 5; May of 2000, that is age 4, at 3; and November of 2000, again at age 4, at 4, was she not?
>
> A. That's correct.
>
> Q. When in there did she have time to have her blood lead level much higher than 6?
>
> A. Oh, either prior to or after October '96, as an example. Prior to or after February of '98.
>
> Q. You have seen no records or other information from any source, have you, to suggest that she had higher than 6?
>
> A. That's correct.

Id. at 188-89. Dr. Snodgrass stated that he believed Z.S.'s blood level was higher than 6 simply because she lived in Picher. In the example of Z.S., she had several blood lead tests within a relatively close period of time, but Dr. Snodgrass still based his opinions as to causation on the assumption that Z.S.'s blood lead level was higher than 6. Id. at 188 (Dr. Snodgrass admitted that his opinions on IQ loss were dependant on the existence of higher blood lead levels than test results proved). Aside from the fact that Dr. Snodgrass did not actually run the IEUBK model to account for the specific facts of this case, there was no reason for him to estimate blood lead levels when actual testing existed.

Plaintiffs make a somewhat unusual argument in support of Dr. Snodgrass' testimony, because they state that "Dr. Snodgrass will not go outside the body of science, and offer instead what is only his own particular speculation or assumptions." Dkt. # 561, at 12. Much of Dr. Snodgrass' opinion as to specific causation is based on the assumption that plaintiffs had higher blood lead levels than test results can prove. While a scientific expert may be allowed to extrapolate opinions from existing data, his opinion must be based on accurate facts before expert testimony is admissible. Fed. R. Evid. 702 ("a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data . . . ."); Truck Ins. Exchange, 360 F.3d at 1210 (expert testimony must be based on facts which satisfy Rule 702's reliability requirement before expert testimony can be admitted). In this case, Dr. Snodgrass' specific causation opinion is based on an unsupported assumption that plaintiffs' blood lead levels were higher than their recorded blood lead levels and, consequently, his opinions on specific causation (Opinions 1, 2, and 3) are purely speculative.

Before admitting expert testimony, the Court must exercise it gatekeeping function under Daubert and "assess the reasoning and methodology the expert's opinion, and determine whether it is both scientifically valid and applicable to a particular set of facts." Champagne Metals v. Ken-Mac Metals, Inc., 458 F.3d 1073, 1079 (10th Cir. 2006) (quoting Dodge, 328 F.3d at 1221). The Court would be abdicating its role of gatekeeper if it allowed Dr. Snodgrass to testify that these plaintiffs suffered any injury from exposure to lead. Dr. Snodgrass' report did not give defendants any indication of the facts underlying his opinions or the methodology applied to reach those opinions. He did not even have accurate blood lead levels for four of the plaintiffs. He failed to account for other factors that could have caused plaintiffs' injuries, and he admits that he assumed crucial facts, such as the plaintiffs' blood lead levels, when reaching his opinions. This renders Dr. Snodgrass' testimony that plaintiffs have suffered an injury from exposure to lead wholly unreliable.[10] Therefore, Dr. Snodgrass will be excluded from offering any expert testimony at trial.

IT IS THEREFORE ORDERED that the Motion of Defendants to Exclude Expert Testimony of Wayne R. Snodgrass, M.D., Ph.D. and Brief in Support (Dkt. # 528) is **granted**.

DATED this 6th day of August, 2007.

Claire V Eagan

CLAIRE V. EAGAN, CHIEF JUDGE
UNITED STATES DISTRICT COURT

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[10] The Court has considered whether Dr. Snodgrass could be permitted to offer general opinions as to the known effects of low level lead exposure. However, his expert report does not contain these opinions. Further, it would be prejudicial to allow Dr. Snodgrass to testify about hypothetical injuries from lead, because the jury could infer that plaintiffs have suffered the same injuries, even if the facts do not support such an inference. Therefore, the Court finds that Dr. Snodgrass should not be permitted to offer any testimony at trial.